

REMARKS

Claims 1-15 are all the claims pending in the application, stand rejected on prior art grounds. Claims 1, 2, 6, 7, 11, and 12 are amended herein. Moreover, no new matter is being presented. In addition, the specification is objected to. Applicants respectfully traverse these objections/rejections based on the following discussion.

I. The Prior Art Rejections

Claims 1, 5, 6, 10, 11 and 15 stand rejected under 35 U.S.C. §102(e) as being anticipated by Johansson, et al. (U.S. Patent No. 6,480,505), hereinafter referred to as Johansson. Claims 2, 4, 7, 9, 12 and 14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Johansson. Claims 3, 8 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Johansson, in view of Applicants' Admitted Prior Art. Applicants respectfully traverse these rejections based on the following discussion.

A. The Rejection Based on Johansson

Regarding claims 1, 5, 6, 10, 11 and 15, Johansson, et al. ("Johansson") fails to disclose, teach or suggest the features of independent claim 1, and similarly independent claims 6 and 11, and in particular, "wherein minimizing the number of baseband packets created for said each Link layer packet comprises converting said Link layer packet into as many baseband packets of highest capacity 'Cn' as possible and repeating a conversion process on unconverted bytes using

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each successive lower capacity baseband packet size until all the unconverted bytes have been converted into said baseband packets."

Rather, Johansson merely teaches a system, and related apparatus, for transferring information in packets in a wireless communication network using polling. Contrary to the assertion in the Office Action, this system sends fragmented, small baseband packets, for example, through a conventional Bluetooth system where the packets are generally smaller than one time slot resulting in wasted time slots and degraded link utilization. In particular, "[w]hen data is transferred on the Bluetooth TDD channel, one packet (must) first be sent from a master to a slave directly followed by a packet sent from a slave to a master. Moreover, the Bluetooth packet size used in either of the directions may occupy, for example, 1, 3, or 5 slots, where one slot is 0.625ms wide." Accordingly, Johansson does not disclose preferentially sending "multi-slot packets" like the Applicants' invention. Therefore, Johansson does not disclose, teach or suggest including each baseband packet being of a size corresponding to one of a permitted set of capacities 'C₁, C₂, ... C_n' let alone "wherein minimizing the number of baseband packets created for said each Link layer packet comprises converting said Link layer packet into as many baseband packets of highest capacity 'C_n' as possible and repeating a conversion process on unconverted bytes using each successive lower capacity baseband packet size until all the unconverted bytes have been converted into said baseband packets" as provided in amended independent claims 1, 6, and 11.

Page 3, paragraph 6 of the Office Action states that "Johansson teaches breaking each link layer packet into variable size baseband packets, i.e. packets that occupy 1, 3, or 5 slots, and repeating the conversion process on the unconverted bytes until all the unconverted bytes have

been converted into baseband packets." The Office Action then cites col. 2, lines 36-38; col. 2, line 64-col. 3, line 2; and col. 8, lines 15-18 of Johansson as teaching these features. However, a closer reading of Johansson, and in particular, the cited sections in the Office Action, reveals no such teaching.

First, col. 2, lines 64-col. 3, line 2 of Johansson states, "[i]n addition to controlling data flow to and from slaves in most circumstances using polling as described, a master may control packet size used by a slave to achieve precise control of bandwidth and delay in the piconet. Accordingly, control over, for example Quality of Service (QoS) levels, particularly as they relate to delay factors may be achieved." There is nothing in the quoted language that even remotely suggests repeating a conversion process on unconverted bytes using each successive lower capacity baseband packet size until all the unconverted bytes have been converted into said baseband packets as provided in the claimed invention. Rather, the quoted language (and the context in which it is taken) in Johansson merely refers to controlling master-slave data flow to achieve bandwidth control. However, this does not equate to the conversion process described above and provided in the Applicants' amended independent claims 1, 6, and 11.

Second, col. 8, lines 15-18 of Johansson states, "In addition, bit error rates associated with the communication channel may be at a level where shorter packet sizes may yield a better throughput than longer." Again, there is nothing in the quoted language that even remotely suggests repeating a conversion process on unconverted bytes using each successive lower capacity baseband packet size until all the unconverted bytes have been converted into said baseband packets as provided in the claimed invention. Instead, the quoted language (and the context in which it is taken) in Johansson merely refers to achieving better throughput with

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shorter packet sizes than longer packet sizes. Again, this has nothing to do with the conversion process described above and provided in the Applicants' amended independent claims 1, 6, and 11.

Furthermore, the remainder of Johansson is similarly bereft of any teaching or suggestion of repeating the conversion process in the manner provided by the claimed invention as recited in amended independent claims 1, 6, and 11. Therefore, Johansson does not teach nor render obvious the elements provided by amended independent claims 1, 6, and 11, thereby making amended independent claims 1, 6, 11 patentable over Johansson.

Applicants reiterate their previous arguments that while Johansson is similar to the common applications running on Bluetooth having data packets of the order of kilobytes, the baseband packets, however, that can be sent through the link in Bluetooth are very small in comparison, 339 bytes being the maximum. As a result, just after the application data packets are received, they need to be fragmented into baseband packets, which will be reassembled into application data packets at the receiving end. The L2CAP layer in Bluetooth is responsible for this purpose. Accordingly, the baseband packets can span 1, 3, or 5 transmission time slots.

Furthermore, Applicants provide that if the application data packets are large, it would be wise to fragment into 5 timeslot packets so as to reduce the total transmission delay, whereas data packets smaller than one time slot, if fragmented as five time slot packets will waste time slots and hence degrade link utilization, for example, as taught by Johansson and other conventional applications. Accordingly, Applicants, as indicated above and below, disclose sending one large multislot packet, whereas Johansson merely teaches sending many small packets.

Additionally, Applicants disclose a computer implemented system for transferring data,

which is based on a SAR-Optimum-Slot-Utilization (SAR-OSU) algorithm. "This algorithm aims to decrease the transmission delay of L2CAP packets by reducing the queuing delay of baseband packets. The lesser the number of baseband packets per L2CAP packet, the lesser is the end-to-end delay since only a single baseband packet is sent each time a slave is polled. Hence this algorithm maximizes the data sent each time a slave is polled by preferentially sending multi-slot packets." Accordingly, Applicants' claimed invention utilizes an algorithm where each baseband packet is of a size corresponding to one of a permitted set of capacities 'C₁, C₂, ... C_n'.

Regarding claims 2, 4, 7, 9, 12 and 14, as discussed above, Johansson does not teach or suggest the features of independent claim 1, and similarly independent claims 6 and 11, including each baseband packet being of a size corresponding to one of a permitted set of capacities 'C₁, C₂, ... C_n' and wherein minimizing the number of baseband packets created for said each Link layer packet comprises converting said Link layer packet into as many baseband packets of highest capacity 'C_n' as possible and repeating a conversion process on unconverted bytes using each successive lower capacity baseband packet size until all the unconverted bytes have been converted into said baseband packets.

Since Johansson does not teach the above feature of independent claims 1, 6 and 11, Johansson is deficient, and does not teach or suggest the specific limitation of related dependent claim 7, and similarly dependent claims 2 and 12, including minimizing of the number of baseband packets created for each Link layer packet is by an SAR-OSU algorithm. Johansson further does not teach or suggest the specific limitations of dependent claims 4, 9 and 14. Accordingly, Applicants traverse the assertion that Johansson teaches these features.

In view of the foregoing, the Applicants respectfully submit that the cited prior art reference, namely Johansson, does not teach or suggest the features defined by amended independent claims 1, 6, and 11 and as such, claims 1, 6, and 11 are patentable over Johansson. Further, dependent claims 2-5, 7-10, and 12-15 are similarly patentable over Johansson, not only by virtue of their dependency from patentable independent claims, respectively, but also by virtue of the additional features of the invention they define. Thus, the Applicant respectfully requests that these rejections be reconsidered and withdrawn.

Moreover, the Applicant notes that all claims are properly supported in the specification and accompanying drawings, and no new matter is being added. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

III. Formal Matters and Conclusion

With respect to the objection to the specifications, the specification has been amended, above, to overcome this objection. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the objection to the specification.

In view of the foregoing, Applicants submit that claims 1-15, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

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Respectfully submitted,

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